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09/842,047	04/26/2001	Yasuo Fukuda	Q64291	6518

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EXAMINER

PHAN, THIEM D

ART UNIT PAPER NUMBER

3729

DATE MAILED: 05/21/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/842,047

Applicant(s)

FUKUDA ET AL.

Examiner

Tim Phan

Art Unit

3729

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 1-3, 8-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-7 and 25-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. The amendment filed in Paper No. 8 (filed 3/17/03) has been fully considered and made of record.

Election/Restrictions

2. Applicant's election without traverse of Species A of Group II, Claims 4-7, in Paper No. 6 is acknowledged.

The Restriction mailed on or about 26th September 2002 has been carefully reviewed and is held to be proper. Moreover Applicant did not distinctly and specifically point out any error in the Restriction Requirement. Accordingly, Claims 1-3 and 8-24 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Groups, there being no allowable generic or linking claim.

The Restriction filed on or about 26th September 2002 is hereby **made Final**.

Applicants are required to cancel these nonelected claims (1-3 & 8-24) or take other appropriate action.

An Office Action on the merits of Claims 4-7 and 25-31 now follows.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 31 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There appears to be new subject matter claimed with “beveled gear-shaped” (Claim 31, lines 7 and 8) which is not supported as required by 35 U.S.C. 112, first paragraph.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 4-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Okino et al (US 4,952,272) hereinafter '272.

As applied to claim 4, the '272 teaches a method of manufacturing probe pin for testing, comprising:

- forming an electrode pattern (Cf. Fig. 1, element 2) on a wiring board (Cf. Fig. 1, elements 3 and 1),
- forming a mask pattern (Cf. Fig. 2a, element 9) with dry film resist or photoresist (Cf. column 4, lines 1-2) on an electrode pattern (Cf. Fig. 2b, element 11),
- wet etching (Cf. column 3, lines 21-24) the unmasked portion of the electrode pattern to form pointed bump or acute probe pin (Cf. column 3, lines 26-27) then,
- removing of the mask pattern (Cf. Fig. 2c; column 5, lines 38-40).

As applied to claims 5 and 7, the '272 teaches the plating process of the probe pin or projection electrode in order to protect it against any corrosion (Cf. column 3, lines 48-53).

As applied to claim 6, the '272 teaches the wet etching process by an etching solution (Cf. column 5, lines 22-24) for undercut or side or around mask etching (Cf. column 5, line 25).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (AAPA) in view of Okino et al (US 4,952,272) hereinafter '272 and vice versa.

As applied to claims 25 and 26, AAPA teaches the claimed invention, including the formation of electrode pattern on a wiring board of electronic device (Cf. Specification, page 1, lines 12-13). AAPA does not teach the formation of a mask pattern on electrode for wet etching and the mask pattern removal.

The '272 teaches a method of manufacturing probing pin by forming a mask pattern (Cf. Fig. 2a, element 9) with dry film resist or photoresist (Cf. column 4, lines 1-2) on an electrode pattern (Cf. Fig. 2b, element 11) for wet etching (Cf. column 3, lines 21-24) to form pointed bump or acute probe pin (Cf. column 3, lines 26-27) then the mask pattern removal (Cf. Fig. 2c; column 5, lines 38-40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine AAPA with the '272 and to modify the method of AAPA by applying the

mask/wet etching as taught by the '272 in order to add strength to the wiring board through the projection electrode.

As applied to claim 27, the '272 teaches the plating process of the probe pin or projection electrode in order to protect it against any corrosion (Cf. column 3, lines 48-53).

As applied to claim 28, the '272 teaches the plated film on the projection electrode or probe pin is formed of gold or rhodium to improve electric contact characteristics (Cf. column 8, lines 2-5).

9. Claims 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (AAPA) in view of Okino et al (US 4,952,272) hereinafter '272 and further view of Akram et al (US 5,686,317) hereinafter '317.

AAPA and the '272 teach the claimed invention of forming a projection electrode or probe pin. AAPA and the '272 do not teach the formation of a set of parallel blade-shaped bump portions or probe pins.

The '317 teaches a method of forming probe pins by forming a series of parallel sharp bump portions (Cf. Fig. 1E-3, element 26C; Fig. 4A, element 26).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine AAPA and the '272 with the '317 and to modify the method of AAPA and the '272 by applying the parallel sharp bump portions as taught by the '317 in order to add more strength to the wiring board through the elongated bump portions or projection electrodes.

10. Claims 4-7 are alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (AAPA) in view of Okino et al (US 4,952,272) hereinafter '272 and vice versa.

As applied to claim 4, AAPA teaches the claimed invention, including the formation of electrode pattern on a wiring board (Cf. Specification, page 1, lines 12-13). AAPA does not teach the formation of a mask pattern on electrode for wet etching and the mask pattern removal.

The '272 teaches a method of manufacturing probing pin by forming a mask pattern (Cf. Fig. 2a, element 9) with dry film resist or photoresist (Cf. column 4, lines 1-2) on an electrode pattern (Cf. Fig. 2b, element 11) for wet etching (Cf. column 3, lines 21-24) to form pointed bump or acute probe pin (Cf. column 3, lines 26-27) then the mask pattern removal (Cf. Fig. 2c; column 5, lines 38-40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine AAPA with the '272 and to modify the method of AAPA by applying the mask/wet etching as taught by the '272 in order to add strength to the wiring board through the projection electrode.

As applied to claims 5 and 7, the '272 teaches the plating process of the probe pin or projection electrode in order to protect it against any corrosion (Cf. column 3, lines 48-53).

As applied to claim 6, the '272 teaches the wet etching process by an etching solution (Cf. column 5, lines 22-24) for undercut or side or around mask etching (Cf. column 5, line 25).

Response to Arguments

11. Applicant's arguments with respect to claims 4-7 and 25-31 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tim Phan whose telephone number is 703-605-0707. The examiner can normally be reached on Monday - Friday, 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter VO can be reached on 703-308-1789. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9302 for regular communications and 703-872-9303 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1148.

TP

Tim Phan
Examiner
Art Unit 3729


CARL J. ARBES
PRIMARY EXAMINER

tp
May 12, 2003